

extremely feebly indicated, moderately broad, transverse impression extending to sublateral sulcus and here becoming more distinct. Surface punctate throughout similarly to head. *Elytra* three times as long as prothorax (1.32 mm. : 42 mm.) and from humeri moderately broadened to broadest point at apical third. Humeri feebly gibbous. Lateral margins nearly smooth. Surface with the punctures usually round, about half again as coarse as those of prothorax and seldom separated by as much as their own diameters. Scutellum triangular with the angles rounded, longer than broad (.07 mm. : 0.6 mm.), flat; surface sculptured as pronotum. *Prosternum* with apical half moderately strongly lobed; process as long as prosternum at middle, parallel between coxae, acute at apex, sides opposite coxae strongly and moderately broadly elevated, from apex to nearly opposite posterior portion of coxae with a strong, carina-like, median longitudinal elevation; on each side continuing from elevated sides opposite coxae is an extremely fine line of close granules extending nearly to lobed portion; surface near middle with a few extremely fine, round granules, surface of prosternum generally and that of hypopleura indistinctly, finely punctate. Disk of metasternum with a very feebly impressed median line extending from base to apex; surface punctate as prosternum but with an occasional coarser puncture; sides similarly punctate but with the coarser punctures more numerous though very indistinct. Basal abdominal segment with a fine carina extending at middle from base to apex, the basal portion of the carina being rather indistinct due to numerous rugae; elsewhere the abdominal segments are sculptured as metasternal disk. Legs, especially tibiae and tarsi, rather sparsely pubescent and punctate only with extremely fine, microscopical punctures; fifth tarsal segment longer than the combined length of the first four; claws about half as long as fifth tarsal segment.

Male.—Unknown.

Type.—A female in the collection of the British Museum (Natural History). Ceylon: Mandulsima, VIII-1908 (*T. B. Fletcher*).

DESCRIPTIONS OF SIX NEW SPECIES OF BLISSUS (HEMIPTERA-HETEROPTERA : LYGAEIDAE).

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All of the species herein described were collected on various kinds of wild grasses and probably will prove to be of no economic interest. Of the six forms previously known, *Blissus occiduus* Barb., from the Rocky Mountain States, and *B. arenarius* Barb., from the Atlantic coast, are exclusively grass feeders. *B. hirtus* Mont., ranging all over the northeastern section of the United States as far south as Pennsylvania and

west at least to Minnesota, is also primarily a grass feeder. This is the form, erroneously reported as *B. leucopterus* Say, which has been the cause of so much damage to lawns and golf greens in New England. It seems very probable from the evidence at hand that this species becomes a serious pest to grains only in exceptional seasons. *B. insularis* Barb, occurring in the West Indies and Florida and described as a variety of *B. leucopterus*, is by preference a grass feeder, so far as known. As *B. leucopterus*, the destructive grain pest, is to be considered in a later paper, it is omitted from consideration at present, as is also *B. validus* Blatch., described from Indiana.

***Blissus omani*, new species.**

Brachypterous form: Black; head, pronotum, and scutellum grayish pruinose, rather sparsely grayish pilose; abbreviated corium tawny, membrane white; legs, rostrum, and antennae testaceous, terminal segment, except at extreme base, piceous.

Narrow, elongate, parallel sided posteriorly. Head about one-fifth wider than long; antenna relatively short, lengths of the segments as follows: I, 0.14; II, 0.30; III, 0.26; IV, 0.50 mm. Rostrum extending to middle of intermediate coxa; lengths of the segments as follows: I, 0.20; II, 0.20; III, 0.16; IV, 0.20 mm. Pronotum nearly one-fifth wider than long (0.76 by 0.56 mm.), widest just before the middle region, thence rather strongly rounded anteriorly; disk before the middle finely punctate, posterior third impunctate. Scutellum two-fifths wider than long, with a few scattered, fine, discal punctures. Abbreviated hemelytra about twice as long as scutellum, extending very slightly beyond posterior outer angle of metapleura, usually the two coria slightly in contact behind apex of scutellum; membrane about one-third as long as corium, its apical margin obtusely rounded. Abdomen parallel sided, 0.80 mm. wide, elongate, region behind pronotum just over twice as long as head and pronotum combined; tergum and venter densely grayish tomentose. Length 3.20 mm.

Type, male.—Huachuca Mts., Ariz., June 11, 1933 (P. W. Oman). *Paratypes*, 8 males and 5 females with same data as type. U. S. N. M. Cat. No. 52021.

All of the specimens before me are brachypterous. It is much more slender than *B. leucopterus*, the pronotum is widest before the middle, and the antennae are distinctly shorter.

***Blissus nanus*, new species.**

Brachypterous form: Black; head, except apex of tylus, anterior three-fourth of pronotum, and basal half of scutellum, grayish pruinose, sparsely covered with mostly recumbent silvery white hairs, scarcely long pilose; posterior one-fourth of pronotum velvety black; corium sordid white, more or less marked with fuscous apically, membrane white, apex of tylus, legs, rostrum, and antenna testaceous, terminal segment of the latter piceous.

Narrow, elongate, parallel sided. Head about one-fourth wider than long;

antenna relatively short, lengths of the segments as follows: I, 0.12; II, 0.20; III, 0.18; IV, 0.40 mm. Rostrum extending to base of intermediate coxa, lengths of the segments as follows: I, 0.22; II, 0.24; III, 0.14; IV, 0.18 mm. Pronotum distinctly wider than long (0.68 by 0.48 mm.), widest across the middle region, thence very gently rounded to anterior margin, parallel sided behind middle. Scutellum two-fifths wider than long (0.40 by 0.24 mm.), only the depressed basal part sparsely punctate. Abbreviated hemielytra nearly or quite twice as long as scutellum, extending to outer angle of metasternum, not in contact behind apex of scutellum; membrane one-fourth length of corium, its posterior margin broadly rounded. Abdomen parallel sided, 0.72 mm. wide; region behind pronotum two and one-half times as long as head and pronotum combined. Length 2.80 mm.

Type, male.—Garnett, Kans, July 1, 1936 (P. W. Oman).
Paratypes: 10 males and 4 females with same data as type; 4 males, Wellington, Kans., Webster No. 4097. U. S. N. M. Cat. No. 52022.

This species, like the preceding, has been found only in the brachypterous form and is related to *B. omani*. Besides being smaller, it differs from *omani* in the shape of the pronotum, in the shorter antennae, and in the distinctive black coloration of the posterior part of the pronotum.

***Blissus planarius*, new species.**

Macropterous form: Black; head except tylus, pronotum except posterior half, and scutellum grayish pruinose; corium white with apex infuscated; membrane hyaline; apex of tylus, anterior margin of pronotum narrowly, and posterior margin more broadly testaceous; legs, rostrum, and antennae testaceous, the apex of second and all of third and fourth segments of the latter infuscated.

Narrow, elongate; head, anterior half of pronotum, and scutellum with grayish white incumbent and erect hairs. Head about one-fifth wider than long; tylus shining black; antenna with lengths of segments as follows: I, 0.16; II, 0.32; III, 0.26; IV, 0.50 mm. Rostrum relatively long, apex reaching to posterior coxae or extending slightly beyond these; lengths of the segments as follows: I, 0.36; II, 0.50; III, 0.30; IV, 0.30 mm. Pronotum nearly one-third wider than long (1.00 by 0.68 mm.); anterior pruinose area finely punctate; posterior piceous part nearly denuded and more sparsely punctate, sides not parallel, widest across humeral angles, the two margins distinctly converging anteriorly, more abruptly converging at anterior fourth. Scutellum one-fourth wider than long (0.48 by 0.36 mm.), with fine scattered punctures over the disk and a submarginal row of coarse punctures. Abdomen nearly parallel sided, 0.92 mm. wide; region behind pronotum about twice as long as head and pronotum combined. Length 3.28 mm.

Brachypterous form: Posterior two-thirds of pronotum parallel sided; hemielytra about three times as long as scutellum, extending well behind posterior outer angle of metapleura, both clavus and inner margins of membrane in

contact behind apex of scutellum; membrane a little less than half as long as corium, broadly rounded at apex.

Type, male.—Laramie, Wyo., July 20, 1935 (P. W. Oman). *Paratypes*: 6 males (5 brachypterous) and 6 females (2 brachypterous) with same data as type; male (brachypterous), Ft. Collins, Colo. (C. F. Baker). U. S. N. M. Cat. No. 52023. Lyman, Wyo., June 25, 1935 (Jack Beamer), Coll. University of Kansas.

This is another elongate, narrow form, but, unlike the three aforementioned species, it occurs in both the long and short winged forms. As compared to *leucopterus*, it is narrower, more pruinose, and with a longer rostrum.

***Blissus villosus*, new species.**

Brachypterous form: Head except tylus, pronotum in great part, and scutellum piceous; tylus and narrow anterior and posterior submargins of pronotum fuliginous, the anterior region of the latter slightly pruinose; corium yellow-white to tawny, lightly embrowned apically; membrane white, sometimes lightly tinted with brown; abdomen castaneous; legs, rostrum, and antenna testaceous, terminal segment of the latter more or less infuscated.

Elongate oval, rather densely long pilose, more shaggy than the three preceding species. Head one-fifth wider than long, with scattered, mostly erect, whitish hairs. Antenna rather densely pilose, the lengths of the segments as follows: I, 0.14; II, 0.32; III, 0.30; IV, 0.48 mm. Rostrum extending to apices of intermediate coxae, lengths of the segments as follows: I, 0.30; II, 0.34; III, 0.22; IV, 0.22 mm. Pronotum about one-third wider than long (0.88 by 0.64 mm.), rather densely long pilose, somewhat shaggy, posterior two-thirds parallel sided; posterior margin nearly truncate, the large plumbeous areas on either side of middle finely punctate. Scutellum much wider than long (0.48 by 0.28 mm.), with a few fine scattered punctures and a few fine erect hairs. Abbreviated hemielytra almost or quite twice as long as scutellum, not in contact behind apex of scutellum, membrane very short, very broadly rounded at apex, confined to outer two-thirds of posterior margin of corium. Abdomen with outer margins very gently rounded from base to near apex, 1 mm. wide; region behind pronotum about twice as long as head and thorax combined. Length 3.20 mm.

Type, male.—Mint Canyon, Calif. (near Saugus), June 7, 1935 (P. W. Oman). *Paratypes*: 35 males and 24 females with same data as type. U. S. N. M. Cat. No. 52024.

All of the specimens before me are brachypterous. This species is much more villose than any of the others herein described and the margins of the abdomen are not parallel. Compared to *leucopterus* it is more shaggy, relatively more elongate, and has shorter antennae.

Blissus mixtus, new species.

Brachypterous form: Piceous, pronotum with anterior margin more narrowly and posterior margin more broadly brownish testaceous, anterior disk on either side of middle plumbeous; anterior submargin and posterior one-third dark brown; corium sordid white, apical angle and some of the veins apically fuscous. Membrane lacteous. Tergum castaneous. Apex of tylus, rostrum, legs, and antenna testaceous, third and fourth and frequently apex of second segment of the latter infuscated.

Ovate. Head about one-fifth wider than long (0.56 by 0.40 mm.). Antenna with lengths of segments as follows: I, 0.16; II, 0.30; III, 0.26; IV, 0.50 mm. Rostrum reaching to apex of intermediate coxa; lengths of segments as follows: I, 0.32; II, 0.40; III, 0.24; IV, 0.24 mm. Pronotum nearly one-third wider than long (0.92 by 0.64 mm.), sparsely covered with grayish white hairs, those along the margins longer; plumbeous area of anterior disk finely punctate, posterior third nearly nude; lateral margins straight and parallel posteriorly, anterior one-fourth strongly rounded to anterior margin; posterior margin nearly straight. Scutellum much wider than long (0.44 by 0.28 mm.), with a few fine discal punctures on either side of middle. Abbreviated hemielytra extending posteriorly to about middle of tergum, not quite four times as long as scutellum, hairs of costal margin similar to those of pronotum, the two clavi as well as inner margins of membranes in contact behind scutellum; membrane a little less than one-half the size of corium, bluntly rounded posteriorly. Abdomen 1 mm. wide, outer margins gently rounded; region behind pronotum subequal to head and pronotum combined. Length 3.12 mm.

Type, male.—Alameda County, Calif., July. *Paratypes*: 22 males and 8 females with same data as type; 1 male and 4 females, San Francisco, Calif., March 30, 1912 (J. C. Bridwell); male and female, Salton, Calif., March 28 (H. G. Hubbard); male, Monterey, Calif. (E. A. Schwarz), U. S. N. M. Cat. No. 52025. Female, Sunset Beach, Calif., July 30, 1935 (R. H. Beamer), University of Kansas.

All of the specimens so far seen are brachypterous. It is related to *leucopterus* but the shape of the pronotum is quite different. Besides being differently shaped, it is very much less punctate, with fuscous maculations of the corium fainter, etc.

Blissus brevisculus, new species.

Black; pronotum and scutellum pruinose, abbreviated hemielytra sordid yellow, with apical margin before membrane narrowly and obscurely infuscated; rostrum, legs, and antenna testaceous, the latter with apical part of third and all of terminal segment infuscated. Head, antennae, pronotum, margins of hemielytra, and abdomen densely grayish pilose.

Head one-third wider than long (0.36 by 0.48 mm.), except for the tylus covered with dense matted pubescence; apex of tylus testaceous. Antenna short and robust; lengths of segments as follows: I, 0.12; II, 0.24; III, 0.20;

IV, 0.40 mm., terminal segment nearly four times as long as its diameter. Rostrum reaching to posterior coxa, lengths of segments as follows: I, 0.24; II, 0.32; III, 0.28, IV, 0.24 mm. Pronotum finely punctate and densely covered with pale pubescence; almost one-third wider than long (0.52 by 0.76 mm.); greatest diameter across middle area; posterior margin lightly, concavely arcuate. Scutellum over twice as wide as long (0.36 by 0.16 mm.); a few coarse punctures along lateral margins. Abbreviated hemelytra 0.40 mm. long, of which the membrane occupies 0.12 mm.; as seen from the side, not extending beyond middle point of first visible abdominal segment; very slightly contiguous at apex of scutellum; outer apical margin of membrane bluntly, symmetrically rounded, nearly straight inwardly. Abdomen 1.68 mm. long (dorsal view), a little longer than head and pronotum taken together; lateral margins gently rounded in dorsal outline, 0.92 mm. wide across middle point. Propleurum and venter along sides rather densely pilose, the latter very sparsely pilose on central disk. Legs testaceous, stout, sparsely long pilose. Length 2.40 mm.

Type, male.—Wareham, Mass (C. A. Frost). *Paratypes*: 3 males, same data as type. U. S. N. M. Cat. No. 52026. One female, Harbor, Maine, IV, 20, 1915 (S. L. Mason), in the collection of H. M. Parshley. The four Massachusetts specimens were collected by C. A. Frost under stones, and sent with other miscellaneous material to Walther Horn of the Deutsches Entomologisches Institut, who in turn sent them to me for determination. Doctor Horn has generously allowed the type and one paratype to be deposited in the U. S. National Museum.

This little species, found as yet only in the brachypterous form, is rather closely related to the western *Blissus occiduus* Barb. (1918, Bul. Brooklyn Ent. Soc. XIII : 36). In *B. brevisculus* the head, pronotum, and scutellum are relatively broader in relation to their length and more pilose, and the antenna longer, particularly the terminal segment, which is nearly twice as long as the third. Although it has considerable resemblance to depauperate examples of *Blissus leucopterus*, it can not, in my opinion, be that, as the relative proportions of the pronotum and scutellum, as well as the relative length of the antennal segments, would preclude this.

A NEW SPECIES OF TRIATOMA FROM ARIZONA (HEMIPTERA-HETEROPTERA : REDUVIIDAE).

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Triatoma longipes, new species.

Piceous; outer margin of connexivum narrowly ochraceous-red. Head long and rather narrow, slightly longer than pronotum, just over twice as long to collum as width across eyes; eyes well projected, seen from above each only